

ASPECTS OF ARTISANAL FISHERY IN THE NATIONAL MARINE PARK OF ALONNISOS - HELLAS

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Abstract

The National Marine Park of Alonnisos in Northern Sporades was the first designated Marine Park in Hellas and is currently the largest marine protected area in Europe (approximately 2.260 Km²). Aspects of the regional artisanal fishery were examined during the LIFE MOFI program. CPUE values exhibit great seasonal variations. These differences result from the seasonal landings of tuna, albacore and bogue which are being fished in vast quantities. Three distinctive fishing seasons have been identified regarding the target species. The main target species of the artisanal fishery was *B. boops*.

Keywords: Fisheries, Marine Parks, Aegean Sea

Introduction

During the LIFE MOFI program field work has been conducted in order to accurately measure the actual intensity of seal-fishery interaction aboard local professional artisanal fishing boats in the National Marine Park (N.M.P.) of Alonnisos in Hellas. The purpose of this paper is to describe aspects of synthesis, effort, and seasonality of the artisanal fishery fleet within the area of the national marine park.

Materials and Methods

The work plan included the collection of 15 landings data of coastal fishery vessels per month for a period of two years which started in May 2006 and ended in May 2008. Discards were not included. All the sampling cruises took place in the waters within the park. For the grouping of coastal fishery and the evaluation of target species per month, CPUE values from all gears (kg/vessel/day) per species were used. The non parametric Kruskal-Wallis ANOVA by Ranks test was used to test for differences between monthly CPUE values. Cluster analysis was based on Bray-Curtis similarity indices on thirty species that their frequency of occurrence cumulatively counts for more than 90%. The species, which primarily account for the observed differences between fishing seasons, were defined by SIMPER routine.

Results and Discussion

During the survey, 355 interviews of boat owners were obtained and consist data for landed species. In total, 48 species were of commercial value in the local landings. However, 10 species dominate the catches and these account for 92,1% of the total quantity landed. Of these, 70,7% is represented by 3 species, namely *B. boops* (33,5%), *T. alalunga* (24,2%) and *T. thynnus* (13,2%). Seven species represent 21,3% of the total catches namely *P. elephas* (6,7%), *M. merluccius* (4,3%), *P. pagrus* (3,6%), *Scorpaena sp.* (2,2%), *M. surmuletus* (1,8%), *L. piscatorius* (1,4%), and *P. phycis* (1,1%).

The remaining 38 species consist of 8,1% of the total catches. The total CPUE (kg/day/vessel) from all gears, fluctuated between 11,8 kg/day/vessel in June and 125 kg/day/vessel in December for the period May 2006 – May 2007. For the fishing season June 2007- May 2008 CPUE values fluctuated between 16,8 kg/day/vessel in June and 177 kg/day/vessel in November.

Concerning the total CPUE, for the two fishing periods the non parametric Kruskal-Wallis ANOVA by Ranks test, indicates that there is statistical difference between months for the median CPUE values ($H= 90.99$ and $p =0.000$) for the period 2006-2007. There are also differences for the period 2007-2008 ($H= 71.692$ and $p =0.000$).

Outliers and extreme values were not often recorded for both fishing seasons. When they do these values are associated with the fishing of *T. thynnus* and *T. alalunga* which gives heavy animals and *B. boops* a species that gives large catches. However, lobster and hake fishing were responsible for some outliers. In Alonnisos, however, the daily catches considered to be highly influenced by both environmental and/or biological factors, concerning that the ability of the skippers was the same thought out the year.

Cluster analysis (fig. 1) indicated three groups of fishing seasons. The first fishing season consisted of the autumn months with the addition of December 2007. The second fishing season consisted the winter months of January and February of the years 2006-2007, and the third fishing season spring and summer months of the same years.

Simper analyses indicates a 58,41% average similarity for the first fishing season with *B. boops* (19,9%), *T. alalunga* (19%), *T. thynnus* (13,6%) primarily account for the observed similarity. The second fishing season indicates a 67,97% average similarity. *B. boops* (24%), *L. vulgaris* (14,3%), *S. maena* (13,7%) and *P. pagrus* (13,2%) are mainly responsible for 65,2% of the observed average similarity. The third fishing season indicates a 65,21% average

similarity with *P. elephas* (10,8%), *B. boops* (9,7%), *P. pagrus* (9,6%) and *Scorpaena sp.* (8,9%).

According to these results for all three fishing season, the main target species was *B. boops*. However important differences appear regarding seasonal differentiations. During the autumn months (Season 1) the fleet is focusing its efforts to the fishing of *T. thynnus* and *T. alalunga*, both seasonal catches in the area. During winter months (Season 2) the fleet is targeting mainly *B. boops*. Other species were considered either as accidental catches or occasionally targeted species by the fleet. During spring and summer months (Season 3) the fleet is diversifying the number of target species shifting on the fishing of more common coastal species in the area.

Such data provides a useful insight to regional fishing practices and contribute to determine conservation strategies and effective management measures that could be implemented for the preservation of the area.

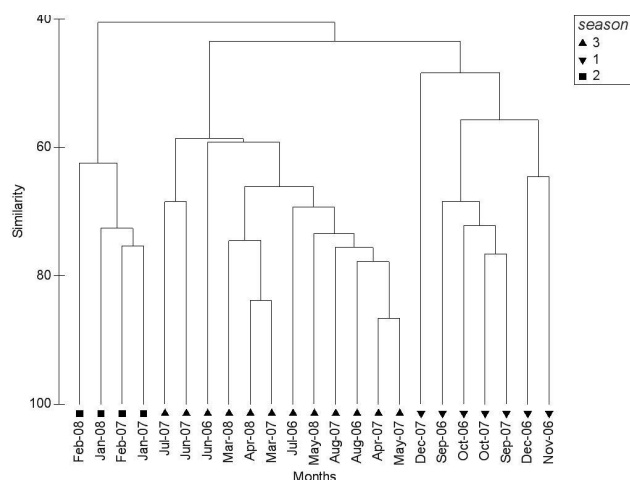


Fig. 1. Dendrogram of similarities for fishing periods in the N.M.P. of Alonnisos in Hellas

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